

Title (en)

METHOD OF IDENTIFYING A FAULT IN A SYSTEM OF GEARS IN A WIND TURBINE

Title (de)

VERFAHREN ZUR IDENTIFIZIERUNG EINER STÖRUNG IN EINEM SYSTEM AUS ZAHNRÄDERN IN EINER WINDTURBINE

Title (fr)

PROCÉDÉ D'IDENTIFICATION D'UN DÉFAUT DANS UN SYSTÈME D'ENGRENAGES DANS UNE ÉOLIENNE

Publication

EP 3452799 B1 20230726 (EN)

Application

EP 17723256 A 20170504

Priority

- DK PA201670295 A 20160504
- DK 2017050136 W 20170504

Abstract (en)

[origin: WO2017190746A1] A method of identifying a fault in a system of gears in a wind turbine is provided. The method determines (204) two or more centre harmonic frequency amplitudes according to vibrations of the system of gears and determines (205) a plurality of sideband amplitudes of each of the centre harmonic frequency amplitudes. Further, the method sums (207) the centre harmonic frequency amplitudes to calculate a total centre harmonic frequency amplitude and sums (206) each of the sideband amplitudes of the centre harmonic frequency amplitudes to calculate a total sideband amplitude. The method then determines (208) a value indicative of damage incurred by the system of gears based upon the first centre harmonic frequency amplitude and the average sideband amplitude. The method may be implemented by a controller which may be used to control a wind turbine or wind park based on the value indicative of damage. The centre harmonic frequencies may be harmonic tooth mesh frequencies and the value indicative of damage may be a ratio of the total centre harmonic frequency amplitude and the total sideband amplitude or vice versa. The method may analyse the value of any ratio obtained and use the ratio values to identify, and monitor the progress of, a fault.

IPC 8 full level

G01M 13/02 (2019.01)

CPC (source: EP US)

F03D 15/10 (2016.05 - US); **F03D 17/00** (2016.05 - US); **G01H 1/003** (2013.01 - US); **G01H 1/16** (2013.01 - US); **G01M 13/02** (2013.01 - EP); **G01M 13/021** (2013.01 - EP US); **F05B 2260/80** (2013.01 - US); **F05B 2270/334** (2013.01 - US); **F16H 2057/02078** (2013.01 - US); **Y02E 10/72** (2013.01 - EP)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2017190746 A1 20171109; CN 109416298 A 20190301; EP 3452799 A1 20190313; EP 3452799 B1 20230726; EP 3452799 C0 20230726; ES 2951264 T3 20231019; US 11333131 B2 20220517; US 2021239098 A1 20210805

DOCDB simple family (application)

DK 2017050136 W 20170504; CN 201780041525 A 20170504; EP 17723256 A 20170504; ES 17723256 T 20170504; US 201716098682 A 20170504